

CHAPTER 4 TABLE OF CONTENTS

4.0 PERSONNEL QUALIFICATIONS AND TRAINING REQUIREMENTS.....	3
4.1 SCOPE.....	3
4.2 GENERAL.....	3
4.2.1 Program Requirements.....	3
4.2.2 Qualification Prerequisites.....	3
4.2.3 Physical Requirements	3
4.2.4 Mobile Crane and Forklift Drivers	4
4.3 TRAINING AND QUALIFICATION PROGRAMS	4
4.3.1 Previous Training and Qualification.....	4
4.3.2 On-the-Job Training	5
4.3.3 Qualification.....	5
4.3.4 Requalification Frequencies	6
4.4 ON-THE-JOB EVALUATIONS.....	7
4.4.1 Classification of Powered Industrial Trucks	7
4.4.2 Classification of Overhead Cranes	7
4.4.3 Classification of Mobile Cranes.....	8
4.4.4 Training	8
4.5 Retraining	8
4.6 WRITTEN AND PERFORMANCE TESTS.....	8
4.7 TRAINING AND QUALIFICATION RECORDS.....	8
4.7.1 Records	8
4.7.2 Qualification Cards	9
4.8 TRAINING SUBJECTS	9
4.8.1 Rigging	9
4.8.2 Mobile Crane Operation	10
4.8.3 Overhead Crane Operation	10
4.8.4 Forklift Operation	11
4.8.5 Forklift Inspection and Maintenance	12
4.8.6 Mobile Crane Inspection and Maintenance	13
4.8.7 Overhead Crane Inspection and Maintenance.....	14
4.8.8 Overhead Mechanical and Electrical Hoist Maintenance.....	15
4.8.9 Wire Rope and Rigging Hardware Inspection and Maintenance.....	15
4.8.10 Equipment Custodian.....	18
4.8.11 Designated Leader (DL).....	19
4.8.12 Supervisor	19
4.8.13 Lift Procedure Author	20
4.8.14 Instructor, Classroom and on the Job	20
4.8.15 Evaluator, on the Job	21
4.8.16 Safety Oversight	21

ATTACHMENTS

Attachment 4.1 Form Locations	20
Attachment 4.2 Example Training Records.....	21
Attachment 4.2.1 Example Training Exemption Request	22
Attachment 4.2.2 Other Training Records.....	23
Attachment 4.3 Example Qualification Cards	24
Attachment 4.3.1 Forklift Qualification.....	25
Attachment 4.3.2 Mobile Crane Operator Qualification.....	26
Attachment 4.3.3 Overhead Crane Operator Qualification	27

INTERPRETATIONS

Replies to Inquiries.....	I-1
Interpretation 4-01, Effective July 28, 2000.....	I-2

Personnel Qualifications and Training Requirements**Page 3**

Note: Compliance with this revision is required no later than May 1, 2000. During the implementation period, December 15, 1999, to May 1, 2000, compliance with the previous revision is authorized.

4.0 PERSONNEL QUALIFICATIONS AND TRAINING REQUIREMENTS**4.1 SCOPE**

This section specifies training and qualification requirements for personnel who

1. Direct
2. Supervise
3. Manage
4. Prepare and approve procedures for hoisting and rigging activities
5. Perform hoisting and rigging.

NOTE: Contracting organizations shall review and verify that subcontractors have an acceptable training and qualification program. The contracting organization shall ensure that the program meets the intent of the requirements of this section to ensure that personnel are qualified to perform work covered by this manual.

4.2 GENERAL**4.2.1 Program Requirements**

Personnel shall be trained and qualified to a level of proficiency consistent with their assigned tasks. Managers responsible for work assignments shall ensure that work assignments do not exceed personnel qualifications. Posting a list of qualified operators adjacent to or on appropriate equipment is recommended.

4.2.2 Qualification Prerequisites

Personnel whose work falls within the scope of this manual shall meet the following qualifications:

1. Be at least 18 years old
2. Be able to communicate in written and spoken English
3. Be able to meet physical requirements of the assignment.

4.2.3 Physical Requirements**4.2.3.1 Physical Examination Requirements**

Before operating mobile, locomotive, and cab- or pulpit-operated overhead cranes, operators and operator trainees shall pass a physical examination. The physical examination shall meet the requirements of consensus standards ASME B30.2, B.30.17, and B30.5. The operator must retain evidence of successfully passing the physical examination.

Crane operators must pass a physical examination every 36 months.

Personnel Qualifications and Training Requirements**Page 4**

Note: Compliance with this revision is required no later than May 1, 2000. During the implementation period, December 15, 1999, to May 1, 2000, compliance with the previous revision is authorized.

If a mobile crane operator successfully passes a commercial motor vehicle (CMV) driver's physical in accordance with the requirements of 49 CFR 391 Subpart E, "Physical Qualification and Examination," he or she satisfies the crane operator physical exam requirements. For mobile crane operators, substance abuse testing is required at least every 36 months.

NOTE: A company's contract, agreement, and/or memorandum of understanding regarding physical examinations determines the medical examiner chosen to perform the physical examination. In general, the Site Occupational Medical Director will clear all medical examinations.

4.2.3.2 Substance Abuse Testing for Mobile Crane Operators

As part of the physical examination requirements, before operating mobile or locomotive cranes, operators and operator trainees shall pass, with a negative result, a substance abuse test. A recognized laboratory shall perform the test. Substance abuse testing shall be performed at least every 36 months.

4.2.4 Mobile Crane and Forklift Drivers

The Commercial Motor Vehicle (CMV) definition found in 49 CFR 383.5, "Definitions," includes motor vehicles with a gross vehicle weight rating of 26,001 pounds or more. Therefore, mobile cranes and forklifts with a gross vehicle weight rating of 26,001 pounds or more are considered CMVs.

49 CFR, "Federal Motor Carrier Safety Regulations and Regulatory Guidance," establishes the CMV driver regulations and qualification requirements.

NOTE: CMV drivers are subject to substance abuse testing independent of the mobile crane operator's substance abuse testing requirements. The same substance abuse test can meet both CMV and crane operator requirements, but the crane operator must be tested at least every 36 months.

4.3 TRAINING AND QUALIFICATION PROGRAMS

Contractors shall have a documented training and qualification program that includes the following elements:

1. Classroom or computer-based training
2. Written tests
3. On-the-job training (OJT)
4. On-the-job evaluations (OJE) (see Attachment 4.1)
5. Pass/fail criteria established and documented in accordance with paragraph 4.6. (For course subjects, see Section 4.8.)

4.3.1 Previous Training and Qualification

Documented evidence of previous training or experience may be accepted to meet training requirements.

Personnel Qualifications and Training Requirements**Page 5**

Note: Compliance with this revision is required no later than May 1, 2000. During the implementation period, December 15, 1999, to May 1, 2000, compliance with the previous revision is authorized.

1. Previous training may include any of the following:
 - a. Vendor or equipment manufacturer training
 - b. Completion of an apprenticeship program
 - c. Journeyman status in an applicable trade.
2. For previous training to be acceptable for Hanford Site qualification, documented evidence must include type and class of equipment and hours of experience. For qualifications not related to equipment operation, personnel must have documented evidence of training and experience related to an activity covered by this manual.
3. Documented evidence may be any of the following:
 - a. Certificates of training
 - b. Journeyman card or documents issued by a trade union
 - c. A degree or accreditation from a college or trade school.
4. The responsible manager shall evaluate and validate training and records (see Attachment 4.2).
5. When previous training and experience are accepted, personnel shall be considered qualified when they have accomplished the following:
 - a. Passed a written test (Section 4.6)
 - b. Satisfactorily completed an OJE (required for instructors, evaluators, and operators of cranes and forklifts).

4.3.2 On-the-Job Training

Contractors will make OJT available for crane and forklift operators. If a forklift or crane operator will use attachments, the OJT will include use and installation of approved attachments. (Example: forklift boom and barrel-handling attachments and crane jibs and boom extensions.) Personnel must satisfy training requirements (see Section 4.3.1) before OJT. The OJT shall be based on the equipment manufacturer's operating instructions, typical tasks, operating environment, and facility- or contractor-specific procedures. The OJT shall provide training and practice under the direct supervision of a qualified operator or qualified OJT instructor in the work environment. Complexity of equipment and tasks, along with the operator's experience shall determine the need for OJT. Management may allow previously qualified or experienced personnel to bypass the OJT and undergo an OJE (see Section 4.4).

4.3.3 Qualification

Personnel shall be considered qualified when they accomplish the following:

Personnel Qualifications and Training Requirements**Page 6**

Note: Compliance with this revision is required no later than May 1, 2000. During the implementation period, December 15, 1999, to May 1, 2000, compliance with the previous revision is authorized.

1. Satisfactorily complete training or meet the requirements of previous training (see Section 4.3.1.1)
2. Pass a written test
3. Satisfactorily complete specific equipment OJT (operators of cranes and forklifts). (Management may determine that previous qualification or experience fulfills this requirement.)
4. Pass an on-the-job performance evaluation (OJE) for instructors and trainers, evaluators, and operators of cranes or forklifts.

4.3.4 Requalification Frequencies

The following are minimum requalification frequencies for categories of equipment and tasks. Personnel who perform the following tasks shall requalify every 36 months:

1. Use rigging or perform rigging activities
2. Function as a designated leader
3. Train, instruct, or evaluate personnel
4. Operate mobile or overhead cranes, or operate forklift
5. Periodic documented inspections of equipment
6. Prepare or approve lift procedures
7. Provide safety oversight of hoisting and rigging operations
8. Supervise or direct [(including designated leaders (DL))] hoisting and rigging operations
9. Act as equipment custodians.

NOTE. It is recommended that personnel who have not performed work or operated equipment for which they were trained and qualified for 12 continuous months be requalified.

4.3.4.1 Requalification Methods

Personnel shall be requalified by the following methods. Personnel who do not satisfactorily complete requalification shall complete training as listed in Sections 4.3.1 through 4.3.3:

1. **Forklift Operation.** OJE
2. **Overhead Crane Operation.** OJE
3. **Mobile Crane Operation.** OJE
4. **Rigging or Use of Slings, Rigging Hardware, Hoists, and Below-the-Hook Lifting Device.** OJE or written test
5. **Inspection of Mobile Cranes, Overhead Cranes, Forklifts, Wire Rope, Rigging Hardware, Below-the-Hook Lifting Devices, Hooks, and Hoists.** OJE or written test

6. **Supervision, Acting as Designated Leader for, or Safety Oversight of, Hoisting and Rigging Operations.** Written test.
7. **Instruction or Evaluation of Personnel** OJE
8. **Acting as Equipment Custodian.** Written test.

4.4 ON-THE-JOB EVALUATIONS

Sections 4.4.1 through 4.4.4 contain lists of types and classes of equipment-specific OJE that personnel must pass before being granted qualifications. OJEs shall have pass and failure criteria that require personnel to demonstrate that they have the knowledge and skills to operate equipment safely. Personnel must be evaluated for each type and class of equipment they operate. Personnel who pass an evaluation for a type and class of equipment are considered qualified on all equipment of the same type and class. Section 4.4.4 lists training personnel who must pass an OJE before being granted qualification. Contractors, facilities, and/or organizations may choose to implement additional facility-specific OJT and/or OJE requirements.

4.4.1 Classification of Powered Industrial Trucks

Powered industrial trucks fall under one of the following classes:

1. Class 1 Electric motor, sit-down and stand-up rider, counter balanced trucks, solid and pneumatic tires
2. Class 2 Electric motor, narrow-aisle trucks, solid tires
3. Class 3 Electric motor, hand trucks or hand/rider trucks, solid tires
4. Class 4 Internal combustion engine trucks, solid tires
5. Class 5 Internal combustion engine trucks, pneumatic tires
6. Class 6 Electric and internal combustion engine tractors, solid and pneumatic tires
7. Class 7 Rough terrain forklift trucks, pneumatic tires.

4.4.2 Classification of Overhead Cranes

Overhead cranes fall under one of the following classes:

1. Class 1 Overhead cranes, floor-operated
2. Class 2 Overhead cranes, cab-operated.

4.4.3 Classification of Mobile Cranes

Mobile Cranes fall under one of the following classes:

1. Class 1 Lattice boom truck cranes
2. Class 2 Lattice boom crawler cranes
3. Class 3 Small telescopic boom cranes, ≤ 17.5 tons
4. Class 3 Class 3 Large telescopic boom cranes, > 17.5 tons.

4.4.4 Training

1. Instructor
2. Evaluator, on the job.

4.5 Retraining

Retraining shall consist of satisfactorily completing training requirements for that activity or equipment. Personnel shall be retrained when one of the following occurs:

1. Equipment with new operating characteristics is acquired
2. Existing equipment is modified, changing the operating characteristics
3. Personnel receive an unsatisfactory performance evaluation
4. Changes in standards or requirements occur that could affect safety
5. Personnel are directly involved in a documented incident that compromises safety of personnel, equipment, or the environment in the performance of hoisting and rigging.

NOTE: See note in paragraph 4.3.4.

4.6 WRITTEN AND PERFORMANCE TESTS

Written, oral, and performance tests shall have established pass/fail criteria, comply with DOE-HDBK-1205-97, *Guide to Good Practices for Design Development and Implementation*, and DOE-HDBK-1206-98, *Guide to Good Practices for on-the-Job Training*, and require students to demonstrate knowledge and skills as defined by training objectives.

4.7 TRAINING AND QUALIFICATION RECORDS

4.7.1 Records

4.7.1.1 Training Records

Training records shall

1. Be maintained by the issuing organization or employer for the duration of qualification.
2. Contain written tests and performance evaluation of knowledge and skills.

3. When applicable, contain documentation supporting evaluation of previous training and qualifications.
4. Indicate activity and/or equipment type and class for which qualification was issued.
5. Contain the name of the qualified individual and the date the qualification was issued.
6. Contain the name and signatures of instructor(s) and students, and the date instruction was given
7. Contain the name and signature of the evaluator, the person evaluated, and the date the evaluation was conducted.

4.7.1.2 Course Records

1. Course description
2. Current lesson plans
3. Student handouts, if applicable
4. Performance evaluations
5. Written tests or the bank of test questions.

4.7.2 Qualification Cards

Qualified personnel may be issued cards identifying their equipment/activity qualifications. Information on these cards must be derived from and supported by training and qualification records (see Section 4.7.1, "Records")

1. Activity covered by qualification
2. Type of equipment or component
3. Class of equipment
4. Date of training
5. Date of evaluation
6. Name of qualified individual
7. Signature of qualified individual
8. Name and signature of the instructor
9. Name and signature of the evaluator.

4.8 TRAINING SUBJECTS

Sections 4.8.1 through 4.8.15 list examples of topics that should be considered for the various course subjects.

4.8.1 Rigging

Training for rigging should cover the following subjects:

1. Capacities
2. Math skills
3. Design factors

4. Sling angles and effects on capacity
5. Load weight calculations
6. Load center of gravity, effects and determination
7. Definitions
8. Inspections
9. Slings, types and applications
10. Rigging hardware, types and applications
11. Below-the-hook lifting devices, types and applications
12. Safety requirements
13. Safe hoisting and rigging practices
14. Attaching the load
15. Moving the load
16. Rigger responsibilities
17. Emergency response
18. Critical lift requirements
19. Standards
20. Signaling and signals
21. Lessons learned.

4.8.2 Mobile Crane Operation

Training for mobile crane operation should cover the following subjects:

1. Load and capacity chart calculations in various configurations
2. Math skills
3. Crane-specific information
4. Standards
5. Operational characteristics
6. Controls and emergency control skills for fire and power line contact
7. Crane performance and stability
8. Prestart and post-start inspections
9. Maneuvering and maneuvering skills
10. Shutdown and securing procedures
11. Crane manufacturer operation and maintenance instructions
12. Operator conduct and responsibilities
13. Operating practices
14. Attaching the load
15. Holding the load
16. Moving the load
17. Personnel lifting
18. Signaling and signals
19. Operating near power lines
20. Traveling with a load
21. Traveling without a load
22. Footing
23. Cabs
24. Refueling procedures
25. Lessons learned
26. Operator aids.

4.8.3 Overhead Crane Operation

Training for overhead crane operation should cover the following subjects:

1. Load and capacity
2. Math skills
3. Crane-specific information

This page intentionally left blank.

Personnel Qualifications and Training Requirements**Page 11**

Note: Compliance with this revision is required no later than May 1, 2000. During the implementation period, December 15, 1999, to May 1, 2000, compliance with the previous revision is authorized.

4. Standards
5. Operational characteristics
6. Crane performance
7. Prestart and post-start inspections
8. Maneuvering and maneuvering skills
9. Shutdown and securing procedures
10. Crane manufacturer operation and maintenance instructions
11. Operator conduct and responsibilities
12. Operating practices
13. Attaching the load
14. Holding the load
15. Moving the load
16. Personnel lifting
17. Signaling and signals
18. Lessons learned.

4.8.4 Forklift Operation

Training for forklift operation is divided into three categories. The training should cover the following subjects, arranged by category:

1. Fundamentals
 - a. Inspection and maintenance
 - b. Responsibilities
 - c. Standards
 - d. Operating instructions, warnings, precautions, etc.
 - e. Braking methods and characteristics
 - f. Visibility with and without a load
 - g. Stability characteristics with and without a load, with and without attachments, requirements and approvals for using attachments
 - h. Controls: location, function, methods of operation, identification of symbols
 - i. Load-handling capabilities of forks and attachments
 - j. Fueling and battery charging
 - k. Guards and protective devices differences between industrial trucks and automobiles
 - l. Engine or motor operation
 - m. Other characteristics.
2. Operating Environment Effects
 - a. Floor or ground conditions, including temporary conditions
 - b. Ramps and inclines with and without a load
 - c. Trailers, railcars, and dock boards, including the use of wheel chocks, jacks, or other securing devices

Personnel Qualifications and Training Requirements**Page 12**

Note: Compliance with this revision is required no later than May 1, 2000. During the implementation period, December 15, 1999, to May 1, 2000, compliance with the previous revision is authorized.

- d. Fueling and battery charging facilities
 - e. Use of "classified" trucks in areas classified as hazardous because of a risk of fire or explosion, as defined in ANSI/NFPA 505
 - f. Narrow aisles, doorways, overhead wires, piping, and other areas of limited clearance
 - g. Areas where the truck may be operated near other powered industrial trucks or vehicles
 - h. Operation near pedestrians
 - i. Use and capacities of elevators
 - j. Operation near the edge of a dock or improved surface
 - k. Other special operating conditions and hazards that could be encountered.
3. Operation
- a. Proper preshift inspection and approved method for removing a truck in need of repair from service
 - b. Load-handling techniques, lifting, lowering, picking up, placing, tilting
 - c. Traveling with a load, without a load, turning corners
 - d. Parking and shutdown procedures
 - e. Other special operating conditions for the specific application
 - f. Operating safety rules and practices
 - g. Other rules, regulations, or practices required by the employer at the location where the powered truck will be used
 - h. Lessons learned.

4.8.5 Forklift Inspection and Maintenance

Training for forklift inspection and maintenance should cover the following subjects:

- 1. Inspection criteria
- 2. Determining who can make repairs
- 3. Fork inspection criteria
- 4. Forklift testing criteria
- 5. Hydraulic systems
- 6. Capacity, operational, maintenance, and name plate requirements
- 7. Rated capacity
- 8. Stability criteria
- 9. Maintenance and rebuilding practices
- 10. Forklift type
- 11. Controls
- 12. Operating mechanism
- 13. Components and attachments
- 14. Safety and warning devices
- 15. Operating instructions
- 16. Modifications requirements

Personnel Qualifications and Training Requirements**Page 13**

Note: Compliance with this revision is required no later than May 1, 2000. During the implementation period, December 15, 1999, to May 1, 2000, compliance with the previous revision is authorized.

17. Replacement parts.

4.8.6 Mobile Crane Inspection and Maintenance

Training for mobile crane inspection and maintenance should cover the following subjects:

1. Inspection classification
2. Standards
3. Control mechanisms adjustments
4. Control mechanisms for excessive wear of components
5. Control mechanisms contamination by lubricants or other foreign matter
6. Safety mechanisms for malfunction
7. Hydraulic hoses
8. Hooks and latches
9. Rope reeving
10. Electrical apparatus
11. Hydraulic system
12. Tires
13. Crane structure and boom
14. Bolts or rivets
15. Sheaves and drums
16. Pins, bearings, shafts, gears, rollers, and locking devices
17. Brake and clutch system, parts, linings, pawls, and ratchets
18. Load, boom angle, and other indicators
19. Gasoline, diesel, electric, or other power plants
20. Chain drive sprockets and chain
21. Crane hooks
22. Travel steering, braking, and locking devices
23. Hydraulic and pneumatic hose fittings and tubing inspection
24. Excessive abrasion or scrubbing of the outer surface
25. Hydraulic and pneumatic pumps and motors
26. Hydraulic and pneumatic valves
27. Hydraulic filters
28. Cranes not in regular use
29. Inspection records
30. Operator aids
31. Operational tests
32. Rated load test
33. Preventive maintenance
34. Maintenance procedure
35. Adjustments and repairs
36. Functional operating mechanisms
37. Safety devices
38. Control systems
39. Power plants

Personnel Qualifications and Training Requirements**Page 14**

Note: Compliance with this revision is required no later than May 1, 2000. During the implementation period, December 15, 1999, to May 1, 2000, compliance with the previous revision is authorized.

40. Braking systems
41. Lubrication
42. Rope inspection (see wire rope and rigging hardware)
43. Lessons learned.

4.8.7 Overhead Crane Inspection and Maintenance

Training for overhead crane inspection and maintenance should cover the following subjects:

1. Inspection classification
2. Standards
3. Frequent inspection interval
4. Periodic inspection interval
5. Frequent inspection criteria
6. Periodic inspection criteria
7. Determination of conditional hazards
8. Operating mechanisms (including remote operating systems, if applicable)
9. Upper-limit devices
10. Tanks, valves, pumps, lines, other parts of air or hydraulic systems
11. Hooks and hook latches
12. Hoist ropes and end connections
13. Spooling of rope on drums and sheaves
14. Periodic inspection criteria
15. Deformed, cracked, or corroded members
16. Bolts, nuts, pins, or rivets
17. Sheaves and drums
18. Pins, bearings, wheels, shafts, gears, rollers, locking and clamping devices
19. Bumpers and stops
20. Brake system parts
21. Drive sprockets, and excessive drive chain stretch
22. Controllers, master switches, contacts, limit switches, and push-button stations
23. Wind indicators
24. Gasoline, diesel, electric, or other power plants
25. Motion limit devices
26. Rope reeving
27. Function, instruction, caution, and warning labels or plates
28. Cranes not in regular service
29. Inspection records
30. Operational tests for new, reinstalled, altered, repaired, or modified cranes
31. Rated load test
32. Preventive maintenance
33. Maintenance procedure
34. Adjustments, repairs, and replacements
35. Lubrication
36. Rope inspection (see wire rope and rigging hardware)

Personnel Qualifications and Training Requirements**Page 15**

Note: Compliance with this revision is required no later than May 1, 2000. During the implementation period, December 15, 1999, to May 1, 2000, compliance with the previous revision is authorized.

37. Lessons learned.

4.8.8 Overhead Mechanical and Electrical Hoist Maintenance

Training for overhead mechanical and electrical maintenance should cover the following subjects:

1. Inspection classification
2. Standards
3. Frequent inspection interval
4. Periodic inspection interval
5. Frequent inspection criteria
6. Periodic inspection criteria
7. Hoists not in regular service
8. Operational tests
9. Load test
10. Preventive maintenance
11. Maintenance procedure
12. Adjustments, repairs, and replacements
13. Lubrication
14. Rope inspection (see wire rope and rigging hardware)
15. Rope maintenance
16. Welded-link chain inspection
17. Welded-link chain replacement
18. Welded-link chain maintenance
19. Roller chain inspection
20. Roller chain replacement
21. Roller chain maintenance
22. Lessons learned.

4.8.9 Wire Rope and Rigging Hardware Inspection and Maintenance

Training for wire rope and rigging hardware inspection and maintenance divided into five categories. The training should cover the following subjects, arranged by category:

1. Wire Ropes
 - a. Frequent inspection criteria
 - b. Standards
 - c. Monthly inspection criteria
 - d. Periodic inspection criteria
 - e. Lift service return inspections
 - f. Wire rope replacement criteria

Personnel Qualifications and Training Requirements**Page 16**

Note: Compliance with this revision is required no later than May 1, 2000. During the implementation period, December 15, 1999, to May 1, 2000, compliance with the previous revision is authorized.

- g. Work site receipt
- h. Rope storage
- i. Unreeling, cutting, seizing
- j. Lubrication type and frequency
- k. Replacement
- l. Extra-long rope
- m. Manufacturer recommendations
- n. Terminal ends
- o. Installation
- p. Before initial load cycle
- q. Initial cycle
- r. New rope stretch
- s. Fastener verification
- t. Replacement documentation
- u. Rope qualification
- v. Lessons learned.

2. Slings

- a. General guidelines
- b. Standards
- c. Defective slings
- d. Rated loads
- e. Sling identification
- f. Effects of environment
- g. Attachments
- h. Documentation
- i. Proof test
- j. Repairs
- k. Operating practices
- l. Rope grades

Personnel Qualifications and Training Requirements**Page 17**

Note: Compliance with this revision is required no later than May 1, 2000. During the implementation period, December 15, 1999, to May 1, 2000, compliance with the previous revision is authorized.

- m. Rope properties
 - n. Minimum lengths
 - o. End attachments
 - p. Replacement
 - q. Cautions and prohibitions
 - r. Fabrication
 - s. Coatings
 - t. Design factors
 - u. Removal criteria
 - v. Construction
 - w. Webbing
 - x. Fittings
 - y. Marking
 - z. Lessons learned.
3. Hooks
- a. New hooks
 - b. Standards
 - c. Throat latches
 - d. Frequent inspection intervals
 - e. Frequent inspection criteria
 - f. Periodic inspection intervals
 - g. Periodic inspection criteria
 - h. Inspection records
 - i. Nondestructive testing
 - j. Lessons learned.
4. Rigging Hardware
- a. Marking and tagging
 - b. Inspection criteria

Personnel Qualifications and Training Requirements**Page 18**

Note: Compliance with this revision is required no later than May 1, 2000. During the implementation period, December 15, 1999, to May 1, 2000, compliance with the previous revision is authorized.

- c. Proof load testing and tagging
 - d. Qualification standards
 - e. Lessons learned.
5. Below-the-Hook Lifting Devices
- a. Design factors
 - b. Standards
 - c. Welding
 - d. Guarding
 - e. Electrical
 - f. Analysis
 - g. Marking
 - h. Modifications
 - i. Initial inspection
 - j. Frequent inspection criteria
 - k. Service classifications
 - l. Periodic inspection criteria
 - m. Inspection records
 - n. Repairs
 - o. Preventive maintenance
 - p. Replacement parts
 - q. Testing
 - r. Operational tests
 - s. Rated load test
 - t. Manufacturers certification in lieu of rated load test
 - u. Lessons learned.

4.8.10 Equipment Custodian

Training for equipment custodians should cover the following subjects:

Personnel Qualifications and Training Requirements**Page 19**

Note: Compliance with this revision is required no later than May 1, 2000. During the implementation period, December 15, 1999, to May 1, 2000, compliance with the previous revision is authorized.

1. Verification of current maintenance
2. Standards
3. Verification of current inspection
4. Verification of current testing
5. Record keeping
6. Proper tagging and removal from service
7. Elements of this manual for the assigned equipment.
8. Manufacturer's operating and maintenance instructions

4.8.11 Designated Leader (DL)

Training for DLs should cover the following subjects:

1. Preparation of critical lift procedures
2. Standards
3. Proper approval of critical lift procedures
4. Documented prelift meeting
5. Flagman assignment and identification
6. Personnel qualification
7. Equipment selection
8. Equipment setup and positioning
9. Work area overview
10. Directing operations
11. Elements of this manual for the work and equipment used.

4.8.12 Supervisor

Training for supervisors should cover the following subjects:

1. Qualified personnel, equipment operation
2. Standards
3. Safe operation of equipment
4. Preplanned and approved hoisting and rigging instructions

Personnel Qualifications and Training Requirements

Page 20

Note: Compliance with this revision is required no later than May 1, 2000. During the implementation period, December 15, 1999, to May 1, 2000, compliance with the previous revision is authorized.

5. Proper tagging of unsafe or restrictive-use equipment
6. Custodian notifications
7. Designated leader assignments
8. Elements of this manual for work assignments of the assigned crew.

4.8.13 Lift Procedure Author

Training for authors of lift procedures should cover the following subjects:

1. Guidelines for lift determination
2. Standards
3. Critical lift determination
4. Critical lift procedures
5. Critical lift procedure approval
6. Procedure revisions
7. Prelift meetings
8. Critical lift documentation
9. Elements of this manual for the work to be done and equipment to be used.

4.8.14 Instructor, Classroom and on the Job

Training for classroom and OJT instructors should cover the following subjects:

1. Technical information in subject area of instructional assignment
2. Standards
3. Instructional techniques
4. Test administration
5. On-the-job training
6. Instructional materials and media
7. Learning objectives
8. Lecture
9. Demonstrations
10. Hands-on exercises

Personnel Qualifications and Training Requirements**Page 21**

Note: Compliance with this revision is required no later than May 1, 2000. During the implementation period, December 15, 1999, to May 1, 2000, compliance with the previous revision is authorized.

11. Performance evaluation
12. Lesson plan
13. Lessons learned in subject area
14. Concepts of systematic approach to training
15. OJT guides
16. Principles of learning
17. Records management

4.8.15 Evaluator, on the Job

Training for on-the-job evaluators should cover the following subjects:

1. Technical information in subject area of evaluation assignment
2. Qualified to perform work or operate equipment associated with evaluation
3. Evaluation techniques
4. Test administration
5. Performance evaluation
6. OJE guides
7. Records management.

4.8.16 Safety Oversight

Training for personnel responsible for safety oversight should cover the following subjects:

1. Standards
2. Pertinent safety requirements for personnel and equipment.

Personnel Qualifications and Training Requirements**Page 22**

Note: Compliance with this revision is required no later than May 1, 2000. During the implementation period, December 15, 1999, to May 1, 2000, compliance with the previous revision is authorized.

ATTACHMENT 4.1**FORM LOCATIONS**

4.1.1 The following on-the-job evaluation (OJE) forms can be found on the Hanford Intranet at <http://docs.rl.gov/siteforms/index.htm>. The site form numbers listed are for various categories for each type of equipment:

- | | |
|---|--|
| 1. Cab-operated overhead cranes | Site Forms A-6002-753 through A-6002-755 |
| 2. Floor-operated overhead cranes | Site Forms A-6002-747 through A-6002-752 |
| 3. Forklifts | Site Forms A-6002-756 through A-6002-764 |
| 4. Mobile Cranes | Pending (four categories) |
| 5. Rigging | Pending (two categories) |
| 6. On-the-job evaluators and on-the-job instructors | Site Form A-6001-995 |

4.1.2 The on-the-job evaluator and on-the-job instructor form has three parts:

1. The OJE score and signature sheet
2. The OJE instructions and check sheet
3. The OJE evaluation answer sheet and performance standard.

Note: Compliance with this revision is required no later than May 1, 2000. During the implementation period, December 15, 1999, to May 1, 2000, compliance with the previous revision is authorized.

ATTACHMENT 4.2

EXAMPLE TRAINING RECORDS

Personnel Qualifications and Training Requirements

Page 24

**Note: Compliance with this revision is required no later than May 1, 2000.
During the implementation period, December 15, 1999, to May 1, 2000,
compliance with the previous revision is authorized.**

Attachment 4.2.1 Training Exemption Request Form.

Personnel Qualifications and Training Requirements

Page 25

Note: Compliance with this revision is required no later than May 1, 2000. During the implementation period, December 15, 1999, to May 1, 2000, compliance with the previous revision is authorized.

TRAINING EXCEPTION REQUEST FORM		Records Use Only
BLOCK 1		
Affected Course No.	Course Title	Date of Exception
Payroll No./Social Security No.	Employee Name (please print)	
Basis for Request: (mark all that apply)		
<input type="checkbox"/> Prior Education	<input type="checkbox"/> Previous Training	<input type="checkbox"/> Other _____
<input type="checkbox"/> Independent Study	<input type="checkbox"/> Previous Experience	
** NOTE: Attach Relevant Documentation **		
Requesting Manager (print/sign name)		Date
** FORWARD TO RESPONSIBLE TRAINING MANAGER **		
BLOCK 2		
Proficiency Verified by: (mark all that apply)		
<input type="checkbox"/> Prior Education	<input type="checkbox"/> Previous Training	<input type="checkbox"/> Other _____
<input type="checkbox"/> Independent Study	<input type="checkbox"/> Previous Experience	
<input type="checkbox"/> Proficiency Test - Results: <input type="checkbox"/> Satisfactory <input type="checkbox"/> Unsatisfactory		
Facility-Specific Instruction:		
Required?	<input type="checkbox"/> Yes	If required, completed _____ Date _____ Instructor _____
	<input type="checkbox"/> No	
Exception is: <input type="checkbox"/> Approval <input type="checkbox"/> Disapproval		
Responsible Training Manager (print/sign name)		Date
FORWARD TO: TRAINING RECORDS G6-60		COPY TO: REQUESTING MANAGER

Personnel Qualifications and Training Requirements

Page 26

Note: Compliance with this revision is required no later than May 1, 2000. During the implementation period, December 15, 1999, to May 1, 2000, compliance with the previous revision is authorized.

Attachment 4.2.2. Other Training Records.

Copies of other training records are available through Site Forms. See Attachment 4.1 for the Internet address of the Site Forms index.

Note: Compliance with this revision is required no later than May 1, 2000. During the implementation period, December 15, 1999, to May 1, 2000, compliance with the previous revision is authorized.

ATTACHMENT 4.3

EXAMPLE QUALIFICATION CARDS

Personnel Qualifications and Training Requirements

Page 28

Note: Compliance with this revision is required no later than May 1, 2000.
During the implementation period, December 15, 1999, to May 1, 2000,
compliance with the previous revision is authorized.

Attachment 4.3.1 Forklift Operator Qualification.

<p>Fluor Daniel Hanford, Inc. (Presented by EXITECH)</p> <p>This Certifies that</p> <p>Joe Smith (0099999)</p> <p>_____ (Signature)</p> <p>Has Successfully Completed The Course Of Study In:</p> <p>Forklift Operational Safety</p> <p>Instructor: _____</p> <p>Class Date: 05/13/97</p>	<p>Fluor Daniel Hanford, Inc. (Presented by EXITECH)</p> <p>This Certifies that</p> <p>Donald M. Squier (0004385)</p> <p>_____ (Signature)</p> <p>Has Successfully Completed The Course Of Study In:</p> <p>Forklift Operational Safety</p> <p>Instructor: _____</p> <p>Class Date: 04/14/98</p>
<p><u>Equipment Evaluation</u></p> <p><u>X*</u> Class 1 (044670)</p> <p>Evaluator Signature/Date _____</p> <p>Evaluator Signature/Date _____</p> <p>Evaluator Signature/Date _____</p> <p><u>X*</u> Class 2 (04467A)</p> <p>Evaluator Signature/Date _____</p> <p>Evaluator Signature/Date _____</p> <p>Evaluator Signature/Date _____</p> <p><u>X*</u> Class 3 (04467B)</p> <p>Evaluator Signature/Date _____</p> <p>Evaluator Signature/Date _____</p> <p>Evaluator Signature/Date _____</p> <p>*Qualification valid with Equipment Specific OJT Checklist #A-6000-971 (as of 11/30/93)</p>	<p><u>Equipment Evaluation</u></p> <p><u>X*</u> Class 1 (044670)</p> <p>Evaluator Signature/Date _____</p> <p>Evaluator Signature/Date _____</p> <p>Evaluator Signature/Date _____</p> <p><u>X*</u> Class 2 (04467A)</p> <p>Evaluator Signature/Date _____</p> <p>Evaluator Signature/Date _____</p> <p>Evaluator Signature/Date _____</p> <p><u>X*</u> Class 3 (04467B)</p> <p>Evaluator Signature/Date _____</p> <p>Evaluator Signature/Date _____</p> <p>Evaluator Signature/Date _____</p> <p>*Qualification valid with Equipment Specific OJT Checklist #A-6000-971 (as of 11/30/93)</p>
<p><u>Equipment Evaluation</u></p> <p><u>X*</u> Class 4 (04467C)</p> <p>Evaluator Signature/Date _____</p> <p>Evaluator Signature/Date _____</p> <p>Evaluator Signature/Date _____</p> <p><u>X*</u> Class 5 (04467D)</p> <p>Evaluator Signature/Date _____</p> <p>Evaluator Signature/Date _____</p> <p>Evaluator Signature/Date _____</p> <p><u>X*</u> Class 6 (04467E)</p> <p>Evaluator Signature/Date _____</p> <p>Evaluator Signature/Date _____</p> <p>Evaluator Signature/Date _____</p> <p>*Qualification valid with Equipment Specific OJT Checklist #A-6000-971 (as of 11/30/93)</p>	<p><u>Equipment Evaluation</u></p> <p><u>X*</u> Class 4 (04467C)</p> <p>Evaluator Signature/Date _____</p> <p>Evaluator Signature/Date _____</p> <p>Evaluator Signature/Date _____</p> <p><u>X*</u> Class 5 (04467D)</p> <p>Evaluator Signature/Date _____</p> <p>Evaluator Signature/Date _____</p> <p>Evaluator Signature/Date _____</p> <p><u>X*</u> Class 6 (04467E)</p> <p>Evaluator Signature/Date _____</p> <p>Evaluator Signature/Date _____</p> <p>Evaluator Signature/Date _____</p> <p>*Qualification valid with Equipment Specific OJT Checklist #A-6000-971 (as of 11/30/93)</p>
<p><u>Equipment Evaluation</u></p> <p><u>X*</u> Class 7 (04467F)</p> <p>Evaluator Signature/Date _____</p> <p>Evaluator Signature/Date _____</p> <p>Evaluator Signature/Date _____</p>	<p><u>Equipment Evaluation</u></p> <p><u>X*</u> Class 7 (04467F)</p> <p>Evaluator Signature/Date _____</p> <p>Evaluator Signature/Date _____</p> <p>Evaluator Signature/Date _____</p>

Personnel Qualifications and Training Requirements

Page 29

Note: Compliance with this revision is required no later than May 1, 2000. During the implementation period, December 15, 1999, to May 1, 2000, compliance with the previous revision is authorized.

Attachment 4.3.2. Mobile Crane Operator Qualification.

<p>Fluor Daniel Hanford, Inc. (Presented by EXITECH)</p> <p>This Certifies that</p> <p>Joseph M. Turner (0057095)</p> <p>_____ (signature)</p> <p>Has Successfully Completed The Course Of Study In:</p> <p>Mobile Crane Operation / Load Chart & LMI</p> <p>Instructor: _____</p> <p>Class Date: 08/29/00</p>	<p>Fluor Daniel Hanford, Inc. (Presented by EXITECH)</p> <p>This Certifies that</p> <p>Joseph M. Turner (0057095)</p> <p>_____ (signature)</p> <p>Has Successfully Completed The Course Of Study In:</p> <p>Mobile Crane Operation / Load Chart & LMI</p> <p>Instructor: _____</p> <p>Class Date: 08/29/00</p>
<p><u>Equipment Evaluation</u></p> <p><u>X*</u> Class 1 (044710)</p> <p>Evaluator Signature/Date _____</p> <p>Evaluator Signature/Date _____</p> <p>Evaluator Signature/Date _____</p> <p><u>X*</u> Class 2 (04471A)</p> <p>Evaluator Signature/Date _____</p> <p>Evaluator Signature/Date _____</p> <p>Evaluator Signature/Date _____</p>	<p><u>Equipment Evaluation</u></p> <p><u>X*</u> Class 1 (044710)</p> <p>Evaluator Signature/Date _____</p> <p>Evaluator Signature/Date _____</p> <p>Evaluator Signature/Date _____</p> <p><u>X*</u> Class 2 (04471A)</p> <p>Evaluator Signature/Date _____</p> <p>Evaluator Signature/Date _____</p> <p>Evaluator Signature/Date _____</p>
<p><u>Equipment Evaluation</u></p> <p><u>X*</u> Class 3 (04471B)</p> <p>Evaluator Signature/Date _____</p> <p>Evaluator Signature/Date _____</p> <p>Evaluator Signature/Date _____</p> <p><u>X*</u> Class 4 (04471C)</p> <p>Evaluator Signature/Date _____</p> <p>Evaluator Signature/Date _____</p> <p>Evaluator Signature/Date _____</p>	<p><u>Equipment Evaluation</u></p> <p><u>X*</u> Class 3 (04471B)</p> <p>Evaluator Signature/Date _____</p> <p>Evaluator Signature/Date _____</p> <p>Evaluator Signature/Date _____</p> <p><u>X*</u> Class 4 (04471C)</p> <p>Evaluator Signature/Date _____</p> <p>Evaluator Signature/Date _____</p> <p>Evaluator Signature/Date _____</p>

Personnel Qualifications and Training Requirements

Page 30

Note: Compliance with this revision is required no later than May 1, 2000. During the implementation period, December 15, 1999, to May 1, 2000, compliance with the previous revision is authorized.

Attachment 4.3.3. Overhead Crane Operator Qualification.

<p>Fluor Daniel Hanford, Inc. (Presented by EXITECH)</p> <p>This Certifies that</p> <p>John W. Reynolds (0027486)</p> <p>_____ (Signature)</p> <p>Has Successfully Completed The Course Of Study In:</p> <p>Basic Crane and Rigging Overhead Crane</p> <p>Instructor: _____</p> <p>Class Date: 05/20/97</p>	<p>Fluor Daniel Hanford, Inc. (Presented by EXITECH)</p> <p>This Certifies that</p> <p>John W. Reynolds (0027486)</p> <p>_____ (Signature)</p> <p>Has Successfully Completed The Course Of Study In:</p> <p>Basic Crane and Rigging Overhead Crane</p> <p>Instructor: _____</p> <p>Class Date: 05/20/97</p>
<p><u>Equipment Evaluation</u></p> <p><u>X*</u> Class 1 (044690)</p> <p>Evaluator Signature/Date _____</p> <p>Evaluator Signature/Date _____</p> <p>Evaluator Signature/Date _____</p> <p><u>X*</u> Class 2 (04469A)</p> <p>Evaluator Signature/Date _____</p> <p>Evaluator Signature/Date _____</p> <p>Evaluator Signature/Date _____</p> <p><u>X*</u> Class 3 (04469B)</p> <p>Evaluator Signature/Date _____</p> <p>Evaluator Signature/Date _____</p> <p>Evaluator Signature/Date _____</p>	<p><u>Equipment Evaluation</u></p> <p><u>X*</u> Class 1 (044690)</p> <p>Evaluator Signature/Date _____</p> <p>Evaluator Signature/Date _____</p> <p>Evaluator Signature/Date _____</p> <p><u>X*</u> Class 2 (04469A)</p> <p>Evaluator Signature/Date _____</p> <p>Evaluator Signature/Date _____</p> <p>Evaluator Signature/Date _____</p> <p><u>X*</u> Class 3 (04469B)</p> <p>Evaluator Signature/Date _____</p> <p>Evaluator Signature/Date _____</p> <p>Evaluator Signature/Date _____</p>
<p><u>Equipment Evaluation</u></p> <p><u>X*</u> Class 4 (04469C)</p> <p>Evaluator Signature/Date _____</p> <p>Evaluator Signature/Date _____</p> <p>Evaluator Signature/Date _____</p> <p><u>X*</u> Class 5 (04469D)</p> <p>Evaluator Signature/Date _____</p> <p>Evaluator Signature/Date _____</p> <p>Evaluator Signature/Date _____</p> <p>*Qualification valid with Equipment Specific OJI Checklist #A-6000-971 (as of 11/30/93)</p>	<p><u>Equipment Evaluation</u></p> <p><u>X*</u> Class 4 (04469C)</p> <p>Evaluator Signature/Date _____</p> <p>Evaluator Signature/Date _____</p> <p>Evaluator Signature/Date _____</p> <p><u>X*</u> Class 5 (04469D)</p> <p>Evaluator Signature/Date _____</p> <p>Evaluator Signature/Date _____</p> <p>Evaluator Signature/Date _____</p> <p>*Qualification valid with Equipment Specific OJI Checklist #A-6000-971 (as of 11/30/93)</p>

Interpretations, DOE-RL-92-36, Chapter 4, *Personnel Qualification and Training Requirements*

Replies to Inquiries

This publication includes written replies issued by DOE (Richland Field Office) or the Hanford Site Hoisting and Rigging Committee in response to inquiries concerning aspects of the applicable chapter.

Interpretations are prepared in accordance with rules specified in the H&R Manual, Chapter 2, if directly resolved by DOE, or through rules governing the H&R Committee, if resolved through committee action, via their balloting process. Persons aggrieved by any interpretation may appeal to the DOE Hoisting and Rigging Program Manager.

Interpretation: 4-01, Effective July 28, 2000

(Note: This interpretation was processed under H&R Committee Letter Ballot 42.)

Re: text from the Hanford H&R Manual, Chapter 4, dated December 15, 1999, Release #17

4.8.15 Evaluator, on the Job

Training for on-the-job evaluators should cover the following subjects:

1. Technical information in subject area of evaluation assignment
2. Qualified to perform work or operate equipment associated with evaluation
3. Evaluation techniques
4. Test administration
5. Performance evaluation
6. OJE guides
7. Records management.

Question - Re: Para. 4.8.15, item 2, does this mean that on the job evaluators (OJE) must be experienced/qualified operators of the equipment (or subject area) covered in the evaluation?

Reply - No. The intent of Chapter 4 and in particular the referenced paragraph is that on-the-job evaluators must

1. have the technical training or experience in the subject area being evaluated,
2. pass a written test in the subject area,
3. have evaluator training, and
4. be evaluated while performing an evaluation (Re: H&R Manual para. 4.3.3).

Evaluators do not have to be evaluated while operating the equipment (or subject area) they are evaluating. Training and a written test can be accomplished through the same programs offered for equipment operators (or for the subject area). On-the-job training (OJT) and on-the-job evaluation (OJE) instructor/evaluator training are available from offsite vendors or the onsite training contractor, ExiTech.

OJE and OJT personnel with previous training or experience, acceptable to their employer, may be qualified by

1. Successfully completing a written test in the subject area they are evaluating, and

2. Successfully performing an OJE, as determined by an evaluation. This evaluation can be performed by another qualified evaluator or a training manager. If the contractor does not have a qualified evaluator or training manager, then support should be requested from the contracting organization.